

Weekly Report

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June 23, 2013

1 Project

This week, I attended the workshop organized by CMA. The associates from Titan had a detail discussion on the database design with me. We also discussed the future work. In the next several months, we will focus on the parallel visualization system. And the dataset will be provided through the interface supplied by Titan.

Several important features need to be done in the next two weeks:

- The applications of some technical patents
- Come up with a name for our system and write a patent for this system
- Finish the initial version of time-varying volume visualization in this system

2 Research

Revision Plan of the Rejected Paper As reported in my seminar representation, two important aspects of revision should be considered:

- Approach verification of this method in another application domain,
- Collected feedback from domain user for the framework proposed in this paper.

This week, I collected the 15 years U.S. Crime Rate dataset for each city from FBI website. I will use this dataset as another application scenario of our proposed uncertainty-aware projection framework. Due to that the dataset is not structurally organized, lots of effort will be put on data cleaning and reorganization. **Movement Data Visualization and Analysis** Recently, visual analytics concerning movement data is a hot research topic. Because, we have a taxis dataset, I decided to choose this topic as a next VIS research project. Currently, I am doing a literature research on this topic to figure out the major problems to be resolved. The survey proposed by Andrienko et al. [1] told us that the state-of-the-art methods focus on the following topics:

- Looking at trajectories: The focus is on visualizing trajectories as wholes.
- Looking inside trajectories: The focus is on visualizing movement characteristics along each trajectory. Typically, a trajectory is considered as a set of consecutive segments.
- Bird's eye view on movement: The focus is on discovering patterns of massive trajectories.
- Investigating movement in context: The focus is on analysing patterns by not just considering the spatial information but also some context information (e.g. day or night, working day or weekend).

In the next weeks, I will read some papers on this topic and come up with some basic ideas.

3 Work to do in next week

- Writing the patent of hybrid visualization of volumetric climate data
- Reading papers regarding the topic of movement data visualization and analysis
- Clean and reorganize U.S. Crime Rate dataset

References

- [1] Natalia Andrienko and Gennady Andrienko. Visual analytics of movement: An overview of methods, tools and procedures. *Information Visualization*, 12(1):3–24, 2013.